



ON THE MANAGEMENT OF DIFFICULT LABOUR
IN SOME CASES OF ABNORMAL PELVIS. By
JAMES ARMSTRONG, M.B. Edin., *Honorary Physician to
the Liverpool Lying-in Hospital.*

MR PRESIDENT AND GENTLEMEN,—I propose to lay before you short notes on the management of difficult labour in some cases of abnormal pelvis, and offer a few practical remarks thereon.

I will allude to cases in which the natural effort fails to effect delivery, and in which the conjugate at the brim is not less than $2\frac{1}{2}$ inches. The first two are cases in which I succeeded with axis-traction forceps after failure with the long forceps.

CASE I.—*Uniformly Contracted Pelvis.*—Mrs B., æt. 29, a multipara, had been in labour for fifteen hours. Instruments were used in her previous labours. Having failed to deliver the case, her medical attendant sent for me.

On internal examination with the hand, which I think is best for all practical purposes, I found the pelvis generally contracted. All the diameters were relatively smaller than normal.

The conjugate was $3\frac{3}{4}$ inches, the vertex presented, and the head was arrested in the brim. I also tried the long forceps, and failed. I then used Tarnier's axis-traction forceps, with which I delivered a living male child in about three-quarters of an hour. The mother made a good recovery.

The following is a somewhat similar case; only it occurred in a primipara:—

CASE II.—Mrs T., æt. 23, had been in labour for twenty hours. Her medical attendant, failing to deliver her, sent for me. I found the pelvis uniformly small, as in the previous case. I

used Simpson's axis-traction forceps, and delivered a living female child in about half an hour. The mother did well.

The next case is one in which I also used Simpson's axis-traction forceps.

CASE III.—*Obliquely-contracted Pelvis of Naegelé*.—Mrs T., æt. 27, a primipara, was admitted into the Lying-in Hospital on March 7, 1885, in labour. As there was delay, I was sent for. I found the pelvis obliquely contracted; the two sides of the brim were unequal; one oblique diameter was shortened; and the symphysis pubis was to one side. The head was arrested in the brim.

I used Simpson's axis-traction forceps, and delivered a living female child in less than half an hour. The mother made a good recovery. This deformity was in consequence of an injury to the right hip during childhood, resulting in ankylosis of the right sacro-iliac synchondrosis, with shortening of the leg.

I consider these three are typical cases for testing the use of the forceps.

No doubt, cases in which there is disproportion between the pelvis and the child's head—the pelvis being normal and the head abnormally large—would require the same management; only in the normal pelvis there is more space for manipulation.

Not to complicate the subject, I will only refer to vertex presentations in the occipito-anterior positions, though abnormal presentations are frequent in abnormal pelvis.

In all the cases the conjugate was not less than $3\frac{1}{2}$ inches. There was no projection forwards of the sacral promontory, the presence of which determines the way the head enters the brim. There was descent, with flexion, and partial engagement of the head in the brim.

Those conditions are favourable to the moulding of the head by the action of the forceps, as the blades can be applied obliquely to the head.

I have tested the comparative merits of long forceps and axis-traction forceps in several cases. I have the very highest

opinion of both Simpson's and Barnes' long forceps in most cases. My experience, however, in the use of axis-traction forceps—I refer to Tarnier's and Simpson's—is, “that I can deliver cases with axis-traction forceps in which I have failed with the long forceps.” Axis-traction forceps have the advantage of assuring traction being made in the axis of the pelvis. They also possess traction, and consequently greater compression-power than the long forceps.

Owing to the peculiarity in the construction of the shanks and to the direct compressing capacity of the blades, Tarnier's can be more easily applied in the narrow pelvis. In Simpson's the blades are more curved, and for this reason are not so liable to slip off the head. I very much prefer Simpson's for traction, which of course implies compression as well.

If axis-traction forceps fail in such cases, the next alternative is cephalotripsy, not version. It would be very doubtful if the aftercoming head could be moulded to a greater extent in the space of time compatible with the life of the child in about five minutes, than with the forceps when accurately applied, as moulding of the head may be kept up for a couple of hours. Besides, the risk to the mother from the liquor amnii being long evacuated, from the uterus being contracted round the child and placenta, and the probability of lacerating the soft parts, would not justify having recourse to version for the extremely small chance of delivering a living child.

If I failed to make the head enter the brim, and the degree of pelvic contraction was not less than $3\frac{1}{2}$ inches in the conjugate, I should perform version in the hope of extracting a living child. As a last resort, the after-coming head could be perforated.

The following are cases of rickety pelvis:—

CASE IV.—*Rickety Pelvis at Term.*—Mrs D., æt. 32, a multipara, was admitted into the Lying-in-Hospital on August 5, 1888, in labour. Instruments were required in her previous labour. There being delay, I was sent for. I found the pelvis irregularly contracted. I could easily touch the sacral pro-

montory projecting forwards. The conjugate at the brim measured $3\frac{3}{4}$ inches, and the transverse diameter was roomy. There was falling back of the pubis. The vertex presented; the head, lying extended in the transverse diameter, was arrested above the brim. I tried both long and axis-traction forceps and failed to make the head enter the pelvis. I repeated the application several times. Failing with the forceps, I determined to try version. On introducing my left hand I found that the contraction was at the brim only. The pelvis was shallow and flat. Pushing aside the head, which was freely movable above the brim, I seized a foot and turned with great ease. A living female child was delivered in less than a quarter of an hour. The time occupied in extracting the after-coming head was less than five minutes. In extracting the after-coming head I find it a great help to have three forces acting simultancously, firm compression over the uterus and steady pulling at the feet slightly forwards, whilst the head is being manipulated. Though the forceps slipped several times, neither mother nor child suffered in consequence. The mother did well, and left the hospital at the end of a fortnight.

The rickety-flat pelvis is the most common form of deformed pelvis. It is in this form with a conjugate from $3\frac{3}{4}$ to $2\frac{3}{4}$ inches, due to jutting forwards of the sacral promontory, that I think most obstetricians agree as to version being preferable to forceps. The difficulty I experience with the ordinary forceps is that they will not hold. They are not adapted to seize the head at the brim in cases of this deformity. If the mechanism of labour in such cases be considered, it will be found that the head, instead of entering the brim in one of the oblique diameters, as in normal labour, enters in the transverse diameter, being directed by the sacral projection. The narrow bi-temporal diameter of the head engages in the narrowed conjugate of the brim, frequently an indentation in the head is caused, and by the head extending, passes the contraction. Then the normal mechanism follows.

The head, therefore, lies extended in the transverse diameter, with the large bi-parietal diameter to one side of the pelvis.

The child's head is grasped by the blades either in the antero-posterior or lateral diameter. As soon as strong traction is made, the forceps invariably slip off. Even if fortunate enough to secure a firm hold, so as to be able to use strong traction and compression, the result is equally disappointing. The head, on examination, is found to remain freely movable above the brim and refuses to enter. Such a case as this is, I think, a typical one for version, as regards both the interests of mother and child.

In version, by pulling at the legs and trunk of the child, the base of the head, which is smaller than the vertex, can be made to adapt itself more readily to the contracted brim. Besides, the size of the head is more easily diminished by overlapping of the bones at the sagittal suture, when the head comes base-first than with the vertex-first.

I have no intention, however, of going into the reasons why version is preferable to forceps in such cases, as these may be read in most of the standard obstetrical works.

Ever since the late Sir James Simpson wrote his paper on "Turning as an Alternative to Craniotomy and the Long Forceps," the subject has occupied the attention of obstetricians. Even now there are many diverse opinions as regards the proper management of such cases.

About two years ago Dr Macfie Campbell read a paper before this Society on "Three Instrumental Deliveries" in cases of contracted pelvis, in all of which the forceps failed, and afterwards turning was performed with great ease.

To meet this class of cases, Dr Sloane, of Glasgow, designed antero-posterior compression forceps, the object of which is to seize and compress the narrow bi-temporal diameter of the head, which would engage the narrow conjugate, and thus imitate nature in trying to overcome the obstruction. I daresay most of you saw it, as it was exhibited at our opening meeting. I cannot speak from experience in the use of this forceps, but I think the idea an ingenious one. The instrument seems admirably adapted for application to the bi-temporal diameter of the head when lying extended in the transverse diameter at the brim of a contracted pelvis, whether vertex-first or base-first.

The cases suitable for the forceps are those in which, the pelvic contraction being slight, the head enters the brim and there becomes arrested; or cases in which the degree of contraction is greater, yet, after long hours, uterine action forces the head into the pelvis, and there it is arrested. Those cases, however, are equally suitable for version, providing this is performed before the head enters the pelvis. Version can be adopted much earlier in the labour than forceps; therefore exhaustion from prolonged labour is saved on the part of the mother, and serious compression on the part of the child. Though I strongly advocate version in such cases as this, I would not hesitate to try the forceps in any likely case. If the head is impacted in the pelvis and cannot be extracted with the forceps, the next alternative is craniotomy or cephalotripsy.

In the next two cases premature labour was induced, after which natural labour supervened in the one and version was required in the other.

CASE V.—*Rickety Pelvis at the 8th Month.*—Mrs H., aged 28, was pregnant for the third time. She consulted me at the 5th month about bringing on premature labour, as craniotomy had been performed in her previous labours. I found the pelvis irregularly contracted. The conjugate at the brim was hardly $3\frac{3}{4}$ inches. Under the circumstances, I advised that labour be induced after the 7th month. Accordingly her medical attendant, under my directions, induced labour in the ordinary way.

The liquor amnii passed away for two days before labour supervened. After induction, natural labour set in, and a living female child was born.

Premature rupture of the membranes had no injurious effect upon the child.

CASE VI.—*Rickety Pelvis at $7\frac{1}{2}$ Months.*—Mrs H., æt. 31, pregnant for the third time, was admitted into the Lying-in Hospital on March 28, 1888. Her medical attendant wrote to me that her previous pregnancies went to term, and that he had performed craniotomy on each occasion.

I found the pelvis very irregularly contracted. The conjugate at the brim was $2\frac{1}{2}$ inches, and at the outlet just admitted three fingers ($2\frac{1}{2}$ inches) from the sacrum, being sharply incurved. The transverse diameter was not shortened. There was marked forward projection of the sacral promontory, and, as was afterwards found, a considerable bulging forwards of the lumbar-vertebral column. The uterus was high up.

On consulting with my colleagues, it was decided to bring on labour. At 6 P.M. on the 30th August I introduced a No. 10 bougie between the membranes and uterine wall—pushing it as far as I could get it—about 7 or 8 inches. From the uterus being high and the outlet so narrow, I had great difficulty in reaching the cervix. Besides there being extreme hydramnios, as was found out after, the cervix was so obliterated that a small depression only in the roof of the vagina could be felt as indicating the position of the os uteri. Slight pains occurred in the night, but passed off. A second night was passed with little or no pain. On the 1st September pains became more severe, but no dilatation had taken place. The bougie was still grasped by the cervix. This being so, I removed it, and gradually dilated the cervix with the finger. The cervix was found to be cicatricial and had to be gradually stretched open. (This state of the cervix most likely resulted from the craniotomies.) I now inserted the smallest of Barnes's bags (Steele's modification). This had to be done under chloroform, which was kindly given by Dr T. Grimsdale on this and several occasions. The pressure of the bag increased uterine contractions. In six hours I found the bag had been expelled. The cervix was now dilated to the fullest extent with the largest bag. To have the cervix fully dilated where, as in a contracted pelvis, the uterus is acting at a disadvantage, is of no small importance in the management of the case. On rupturing the membranes, the liquor amnii gushed away in a very excessive quantity (hydramnios).

The presentation being high, and the passage so narrow, I tried to seize the head with the forceps I now show you, which I find available where there is no room for the ordinary forceps; but I failed to seize the head. Without delay I endeavoured to

turn. Owing to the bulging forwards of the spinal column, I had considerable difficulty in bringing the trunk of the child round the "false promontory." At length I managed to liberate the arms. The child was still living. I made every effort to extract the head as soon as possible. It must have been ten minutes before I succeeded, and a male child stillborn was delivered.

The weight of the child was unfortunately not ascertained. The head was certainly more than an average size for eight months. The mother made an excellent recovery, and at the end of a fortnight returned home to a distant part of Wales.

In this extreme case I think a living child might have been born had labour been induced at the thirtieth week. The amount of forcible traction required to extract the after-coming head, which no doubt killed the child, had no injurious effect upon the mother. Where there is delay in extracting the after-coming head, and the child's mouth is within reach, a breathing channel can be extemporised by inserting a male catheter into the mouth. I am convinced that this procedure would have been of no avail in this case. The head was so tightly jammed in this irregularly contracted brim, that I could not have used forceps to the after-coming head. To have attempted to deliver a living child at term, with a conjugate at the brim of $2\frac{1}{2}$ inches, would have been hopeless. As it was, induction of premature labour was a failure so far as the child was concerned, though as regards the mother it, with turning afterwards, proved alternative to craniotomy. And, though the mother made good recoveries after both craniotomies, I am sure there can be no difference of opinion as to the gravity of the two operations in such an extreme case.

I may be allowed to mention that the forceps I referred to was designed by Mr Rawdon, for use in premature cases where there is want of space to apply the ordinary forceps. It was a case of puerperal convulsions at the sixth month, at which he and I were present, and for which induction of abortion was required, that we felt the necessity of such a forceps, and for want of which I had recourse to version. He had this forceps

made forthwith. I have used the instrument with every satisfaction in a case of labour obstructed by a tumour in the hollow of the sacrum, for which premature labour was induced at the seventh month.

My reason for referring to this forceps is that, in cases of contracted pelvis, more especially where there is no forward projection of the sacral promontory, necessitating induction of premature labour, it will prove most useful where from want of space the ordinary forceps are not available.

I will sum up my conclusions thus:—That cases of contracted pelvis, in which there is no jutting forward of the sacral promontory, the conjugate at the brim being from 4 to $3\frac{1}{4}$ inches, and the head engaged in the brim, are best treated with forceps by preference, axis-traction forceps; and should forceps fail, that cephalotripsy is the next alternative, not version, unless the head refuses to enter the brim: That cases of ricketty pelvis, with a conjugate at the brim from 4 to $2\frac{3}{4}$ inches, in which there is a marked projection forward of the sacral promontory, preventing the head entering the brim, the head lying extended in the transverse diameter, and freely movable above the brim, are best treated by version: And that, in cases in which there is a greater degree of pelvic contraction, with marked sacral projection forward, necessitating the induction of premature labour; version afterwards is, as a rule, preferable to the ordinary forceps, the parts being so narrow.

I have endeavoured to select a few typical cases of abnormal pelvis to illustrate my paper, in the hope of initiating a discussion on the following questions:—(1) In which cases of abnormal pelvis should forceps be used? (2) What kind of forceps? (3) In which cases should version be adopted?

